

METHODS AND APPARATUS FOR AUTOMATIC
MAGNETIC COMPENSATION

ABSTRACT OF THE DISCLOSURE

A method for characterizing distortions in the earth's magnetic field caused by a vehicle having a magnetometer affixed therein is described. The method includes repeatedly measuring the distorted magnetic field utilizing the magnetometer and obtaining a three-dimensional orientation of the vehicle axes with respect to the earth at a time of each magnetometer measurement. The method also includes receiving undistorted earth magnetic field data for the vicinity of the vehicle relative to the earth at the time of each magnetometer measurement and characterizing distortions caused by one or more of the vehicle and magnetometer errors utilizing the magnetic field measurements, the orientations of the vehicle, and the undistorted earth magnetic field data.